



AP/1711A

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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AUG 13 2003  
TC 1700

Applicant: Thomas Moravec, et al. Examiner: T. Ribar  
Serial No. 09/854,419 Group Art Unit: 1711  
Filed: May 11, 2001 Docket No. 589.102US1  
Title: PROVISION OF PHOTOCHROMIC LAYERS ON POLYMERIC  
SURFACES BACKGROUND OF THE INVENTION

**MAIL STOP APPEAL BRIEF-PATENTS**

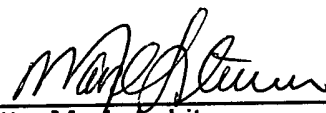
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**The following documents are hereby submitted:**

- ☒ Appeal Brief to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office (three copies)
- ☒ Authorization to withdraw \$320.00 to cover Appeal Brief Fee
- ☒ Transmittal Sheet
- ☒ Return postcard

**Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers if an additional extension of time is deemed necessary by the Office. Authorization is hereby given to charge Deposit Account Number 50-1391 if such additional extension is necessary.**

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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on August 4, 2003.

Mark A. Litman  
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**APPEAL BRIEF TO THE BOARD OF  
PATENT APPEALS AND INTERFERENCES OF THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

MAIL STOP PATENT APPEAL BRIEF  
**Commissioner for Patents**

P.O. BOX 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal from the Office Action mailed on 5 March 2003 finally rejecting claims 1, 3-17 and 19-26, all of the claims in the Application, and the Advisory Action mailed 19 June 2003 allowing entry of claim amendments and withdrawing all rejections under 35 USC 112, first and second paragraphs. All other claims are withdrawn/cancelled as drawn to a non-elected invention.

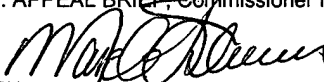
This Brief is being filed in triplicate along with authorization to debit \$320.00 to Deposit Account No. 50-1391 to cover the fee for the appeal. Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

08/08/2003 CNGUYEN 00000083 501391 09854419

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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: MAIL STOP: APPEAL BRIEF, Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450 on 4 August, 2003.

Mark A. Litman  
Name

  
Signature

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**REAL PARTY IN INTEREST**

The real party in interest is Vision-Ease Lens, Inc., a wholly owned subsidiary of BMC Industries, Inc. having a place of business at One Meridian Crossings, Suite 850, Minneapolis, MN 55436, and incorporated under the Laws of the State of Minnesota.

### **RELATED APPEALS AND INTERFERENCES**

Appellants do not know of any other pending U.S. Patent Applications that are on appeal which have issues that overlap with the issues in this Appeal. No Interference proceedings before the U.S. Patent and Trademark Office are known by Appellants to have any substantive relationship to the subject matter of this Appeal.

### **STATUS OF CLAIMS**

#### **Claims 1, 3-10 and 13-19 stand finally rejected under 35 USC 103(a) under two grounds of rejection.**

Claims 1, 3-10 and 13-19 have been rejected as unpatentable under 35 USC 103(a) as obvious over Bhalakia in view of Ormsby et al.

Claims 1, 3-10 and 13-19 have been rejected as unpatentable under 35 USC 103(a) as obvious over Bhalakia in view of Rosthauser et al.

All other claims have been withdrawn from examination and cancelled, Appellants retaining the right to file divisional applications on the subject matter of the cancelled non-elected claims and other subject matter disclosed but not claimed in this Application.

### **STATUS OF AMENDMENTS**

An Amendment After Final Rejection filed under 37 CFR 1.116 was filed on 4 June 2003. The Advisory Action mailed by the U.S. PTO on 19 June 2003 indicates that all Amendments to the claims have been entered for the purpose of Appeal, that the rejections under 35 USC 112 have been overcome, but that the rejections under 35 USC 103(a) are still in force.

### **SUMMARY OF THE INVENTION**

Curved photochromic lenses and flat or slightly curved laminates are known to be useful in spectacles, masks, goggles and optical instruments. (Page 1, lines 14-18) To preserve the photochromic ability of the lens, it is necessary that the lenses or lens blanks be manufactured in as mild an environment as possible to reduce stress on photochromic components. (Page 5, lines 6-7)

It has been found that a laminable photochromic element may be manufactured with a particular combination of process conditions and photochromic carrier binder composition that satisfies the needs of the industry and provides a quality product. (Page 6, lines 2-16). The lens laminate comprises a photochromic layer comprising a polyester urethane binder and a photochromic compound. The photochromic layer is adhered to one surface of a polymeric layer comprising a polycarbonate resin or a polysulfone resin, and the photochromic layer is sandwiched between two polymeric layers. Each of the two polymeric layers comprises a polymer selected from the group consisting of polycarbonate and polysulfone resins. (Original Claim 1 and Page 6, line 18 through Page 7, line 13) It has been found that the use of specifically a polyetherurethane adhesive for the photochromic material provides improved properties as compared to other adhesives that are closely related in chemical structure. (Page 6, lines 14-16 and Page 24)



### ISSUES ON APPEAL

The generic issues on Appeal are whether the invention as claimed is unobvious over the two combinations of references cited by the PTO under 35 USC 103(a). The specific issues on this appeal include:

- 1) Where the record provides uncontroverted evidence that the specific polymer adhesive class recited in the claims (polyetherurethanes) provides unexpected improved results as compared to polymers asserted to be equivalent in the prior art (polyesterurethanes), a rejection as obvious under 35 USC 103(a) has been rebutted.
- 2) Where the record provides uncontroverted evidence that a particular process using the specific polymer adhesive class recited in the claims (polyetherurethanes) provides unexpected improved results in the final article as compared to a process using polymers asserted to be equivalent in the prior art (polyesterurethanes), a rejection as obvious under 35 USC 103(a) has been rebutted.
- 3) Where the prior art has not recognized the problems identified in the practice of the invention and, in fact, asserts that prior art products are satisfactory, the identification of a measurable problem and the solution of that problem by unexpected means establishes patentability under 35 USC 103(a).

### **GROUPING OF CLAIMS**

The following grouping of claims is made in compliance with the requirements of 37 C.F.R. 1.191 for the content of an Appeal Brief. The following grouping of claims is made to expedite this Appeal and narrow issues, and is not intended to waive or limit the right of the Applicants to enforce and defend claims separately, even though they are grouped for convenience in this Appeal.

Claims 1 and 3-10 and 13-19 shall stand or fall with the patentability of claim 1, the only independent claim in the Application.

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**ARGUMENTS OF APPELLANTS**

Rejection Under 35 USC 103(a)

Claims 1-10 and 13-19 have been rejected under 35 USC 103(a) as obvious over Bhalakia et al. (U.S. Patent No. 5,757,459) in view of Ormsby et al. (U.S. Patent No. 4,889,413).

Claims 1-10 and 13-19 have been rejected under 35 USC 103(a) as obvious over Bhalakia in view of Rosthauser et al. (U.S. Patent No. 6,107,395).

Claims 1 and 3-10 and 13-19 shall stand or fall with the patentability of claim 1, the only independent claim in the Application.

Both of these rejections suffer from the same defect. Although Bhalakia shows a structure that is laminable to a lens, the structure having a polarizing layer sandwiched between two polymeric layers, that showing is not suggestive of the presently claimed invention of Claim 1, even with the teachings of the two secondary references (Ormsby et al. and Rosthauser et al.). Bhalakia requires the use of the laminate system for applying polarizing layers to the surface of a lens blank prior to molding because the stress on polarizing layers was disruptive of the quality of the polarizing qualities of the layer. As that layer needed to be oriented, it could not be coated onto the outer surface of a lens or lens blank from a solution. That problem is non-existent with a photochromic dye that does not have to be oriented and whose function is not affected by planar orientation on a lens.

The Bowles reference (cited earlier in the prosecution history) actually shows that the art recognized that the problems addressed by Bhalakia were believed to be not needed in the use of photochromic materials. Bowles showed that photochromic layers had already been successfully applied directly to lens after molding by coating of the solution onto the lens (e.g., spin coating). The problem to be solved by Bhalakia was therefore not seen to exist in the prior art. It is not obvious to use a more complex process (the formation of a laminate to adhere a sandwiched layer as opposed to direct coating shown by Ormsby et al.) when there is no need to use a process that has shown unique benefits only for layers subject to disorientation of materials that require planar orientation (the polarizing layer of Bhalakia). The photochromic layers do not require such an orientation and therefore are not believed to benefit from the process in the first instance.

Applicants recognized that the use of a laminable sandwich structure with a photochromic intermediate layer solved another, previously unrecognized set of problems. The coating method of Bowles could not consistently provide uniformity or design of the photochromic coating to a molded lens surface. Liquid applied coatings could tend to uncontrolled color variance across the surface of the lens, the desired gradation of density from the middle of the lens to the exterior could not be uniformly controlled, and the application of liquid coatings could not easily be limited to a single surface, so that cleaning or grinding might be needed.

The Ormsby et al. reference and the Rosthauser et al. reference show the application of a liquid coating of the polyether urethane between layers and the curing of the liquid layer while it is between the layers or the casting of a solid layer of polymer, respectively. (Ormsby et al. column 2, lines 42-66; Rosthauser et al. shows only casting of a single layer on column 14, lines 49-67, with no adhesion to other surfaces). There is no indication of the use or benefits of a laminable layer using the polyetherurethane.

Additionally, both references (Ormsby et al. and Rosthauser et al.) regard polyesterurethanes, polyetherurethanes and polycarbonate polyols as equivalents (e.g., Ormsby et al. column 2, lines 52-62; Rosthauser et al. asserts that any polyurethane may be used on column 3, lines 30-38). As Appellants have shown by direct comparative results that the use of the polyetherurethane binder in the structure and process of the present invention has unexpected and beneficial properties as compared to the polyesterurethane 'equivalent' of the prior art, Appellants have established uncontroverted evidence rebutting obviousness. Where the prior art specifically identifies materials as equivalents, and Appellants have established by clear evidence that they are not equivalent and that their claimed materials show a measurable difference, obviousness under 35 USC 103(a) has been legally rebutted.

As the problem of dye fatigue in the photochromic layer was not recognized by any of the pairs of references used in the rejection, and as there is no suggestion in any reference of providing laminable photochromic sandwiches, nor of laminating any form

of photochromic layers to a lens blank, the art of record fails to teach that the invention as whole is obvious to one skilled in the art. The rejection is in error and should be withdrawn.

### **UNEXPECTED RESULTS**

The rejection has stated that in the absence of any unexpected results, the subject matter is unpatentable over the combination of references. The specification has clearly identified and shown by direct comparisons in the specification (see pages 21-24, especially the Table) that the **polyether urethanes** that are recited in all of the claims show unique and improved results, even in comparison to polyester urethanes. There is no basis on the record for asserting that these results are obvious to one of ordinary skill in the art from the teachings of either of these combinations of references. As such, even without the clear errors believed to have been shown above, the failure to teach the resulting unexpected properties from the combination system with the polyether urethane renders the rejection insufficient as a matter of law.

The clear showing of unexpected results on pages 21-24 of the specification rebut even a prima facie showing of obviousness, which Applicants assert has not been established on the record.

**CONCLUSION**

All rejections of record have been shown in detail to be in error. The rejection should be reversed and all claims should be indicated as allowable.

Applicants believe the claims are in condition for allowance and request reconsideration of the application and allowance of the claims. The Examiner is invited to telephone the below-signed attorney at 952-832-9090 to discuss any questions that may remain with respect to the present application.

Respectfully submitted,  
THOMAS J. MORAVEC

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Date 4 August 2003

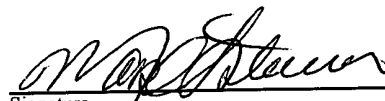
By



Mark A. Litman  
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Name: Mark A. Litman

  
Signature

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## APPENDIX - THE CLAIMS ON APPEAL

1. (PREVIOUSLY AMENDED) A laminable photochromic element comprising a photochromic layer comprising a polyester urethane binder and a photochromic compound, the photochromic layer adhered to one surface of a polymeric layer comprising a polycarbonate resin or a polysulfone resin, wherein the photochromic layer is sandwiched between two polymeric layers, each of the two polymeric layers comprising a polymer selected from the group consisting of polycarbonate and polysulfone resins.

2. (CANCELLED)

3. (PREVIOUSLY AMENDED) The laminable photochromic element of claim 1 consisting of three layers, the photochromic layer and the two sandwiching layers, the two sandwiching layers comprising a polymer selected from the group consisting of polycarbonate resin and polysulfone resin.

4. (PREVIOUSLY AMENDED) The laminable photochromic element of claim 1 fused to a polymeric substrate



5. (PREVIOUSLY AMENDED) The laminable photochromic element of claim 1 adhesively secured to a polymeric surface.

6. (ORIGINAL) The laminable photochromic element of claim 4 wherein the polymeric surface comprises an ophthalmic lens.

7. (ORIGINAL) The laminable photochromic element of claim 5 wherein the polymeric surface comprises an ophthalmic lens.

8. (ORIGINAL) The laminable photochromic element of claim 1 wherein the polymeric layer comprises a polycarbonate resin or a polysulfone resin with a first surface and a second surface, the polyester urethane is contiguous to the first surface of the polymeric layer and to a functional layer selected from the group consisting of scratch resistant layers, anti-fogging layers, tint layers, and hydrophobic layers.

9. (PREVIOUSLY AMENDED) The laminable photochromic element of claim 3 wherein the polymeric layer comprises a polycarbonate resin or a polysulfone resin with a first surface and a second surface, the polyester urethane is contiguous to the first surface of the polymeric layer and to a

functional layer selected from the group consisting of scratch resistant layers, anti-fogging layers, tint layers, and hydrophobic layers.

10. (ORIGINAL) The laminable photochromic element of claim 7 wherein the polymeric layer comprises a polycarbonate resin or a polysulfone resin with a first surface and a second surface, the polyester urethane is contiguous to the first surface of the polymeric layer and to a functional layer selected from the group consisting of scratch resistant layers, anti-fogging layers, tint layers, and hydrophobic layers.

11. (CANCELLED)

12. (CANCELLED)

13. (PREVIOUSLY AMENDED) A method of forming a multi-layer polymeric photochromic article comprising securing the laminable photochromic element of claim 1 to a polymeric article.

14. (PREVIOUSLY AMENDED) A method of forming a multi-layer polymeric photochromic article comprising laminating one of said two polymeric layers of the laminable photochromic element of claim 1 to a polymeric article.

15. (PREVIOUSLY AMENDED) A method of forming a multi-layer polymeric photochromic article comprising laminating one of said two polymeric layers of the laminable photochromic element of claim 3 to a polymeric article.

16. (PREVIOUSLY AMENDED) A method of forming a multi-layer polymeric photochromic article comprising laminating one of said two polymeric layers of the laminable photochromic element of claim 4 to a polymeric article.

17. (PREVIOUSLY AMENDED) A method of forming a multi-layer polymeric photochromic article comprising laminating one of said two polymeric layers of the laminable photochromic element of claim 5 to a polymeric article.

18. (CANCELLED)

19. (ORIGINAL) A method of forming a multi-layer polymeric photochromic lens comprising laminating a polymeric layer of the laminable article of claim 7 to a polymeric article.

20. (CANCELLED)

21. (CANCELLED)

22. (CANCELLED)

23. (CANCELLED)

24. (CANCELLED)

25. (CANCELLED)

26. (CANCELLED)

27. (CANCELLED)

28. (CANCELLED)